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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,304	07/31/2001	Morgan Rey Benson	DP-304879	2487

7590 08/08/2003

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EXAMINER
ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
1745	7

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,304	BENSON ET AL.	
	Examin r	Art Unit	
	Raymond Alejandro	1745	

-- The MAILING DATE f this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *18-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (claims 1-17) in Paper No. 6 is acknowledged. The traversal is on the ground(s) that "the office has not carried the burden of providing reasons and/or examples to support the serious burden" and "that the battery modules per se does not preclude capacitor devices". This is not found persuasive because the particular search for the elected claims is not required for non-elected claims, that is, the search required for the battery packs is not particularly required for the method of constructing the battery pack. As admitted by the applicants, the inventive concepts involve both the battery pack product per se and the construction thereof. However, since the restriction requirement has been treated as process of making and product made, it is further noted that the inventions are distinct because the process as claimed can be used to make other and materially different product such as a capacitor pack, solar cell pack, photovoltaic cell pack which are materially different products well known in the art; as well as the product as claimed can be made by another and materially different process, for example, conventional battery packs are made by using cans or rectangular boxes as packages for the battery cells employing metal terminals to carry current through the package seal to the outside for connection to an overall package connecter (*as admitted by the applicants*). Further, these inventions are distinct, and acquire a separate status in the art because Group I (the battery pack) is classified in class 429, 158 while Group II (the method of constructing the battery pack) is classified in class 29/623.1. Accordingly, serious burden would be raised if the search of both different inventions was made as required for the separate and distinct inventions. The requirement is still deemed proper and is therefore made **FINAL**.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 09/20/01 (paper # 4) was considered by the examiner.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 98. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. *The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.* The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2 and 4-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Ronning et al 6423441.

The instant application is directed to a battery pack wherein the disclosed inventive concept comprises the specific flexible circuit configuration. Other limitations include the terminals, the bicells, the flaps, the tang; the windows; the jumpers; the controller connecter; the fuse; the pack connecter; the current sensor and the living hinge.

Regarding claims 1-2, 4 and 14:

Ronning et al disclose a battery pack including a plurality of battery modules 18 (COL 3, lines 10-13) having positive and negative terminals 40 extending from the modules (COL 4, lines 7-10); a flexible printed circuit 22 (COL 3, lines 11-13).

Battery modules 18 provide power to electrical systems external to battery pack 10 wherein each module 18 includes a pair of terminals 40+ and 40- extending from respective ends of the module 18 (COL 3, lines 49-55). It is disclosed that flexible printed circuit 22 is provided to establish electrical connectivity between each cell-to-cell node and controller to enable measurements of voltage levels and other parameters within the battery pack 10 (COL 4, lines 35-44).

It is disclosed that the battery pack includes a plurality of buss interfaces 20 (COL 3, lines 10-13) having flange portions (col 3, lines 25-30) which connects the modules by edge

connections connecting positive and negative terminals of adjacent cells (COL 3, lines 55-64/ COL 3, line 65 to col 4, line 5/ Figure 1C).

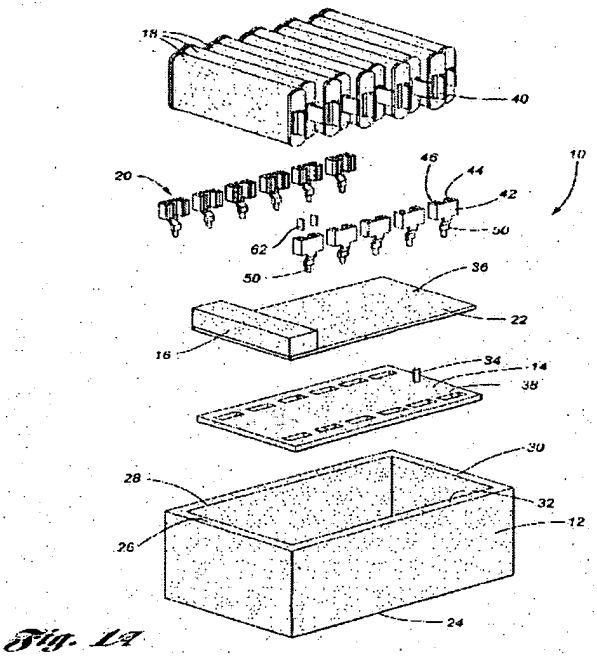

Fig. 1A

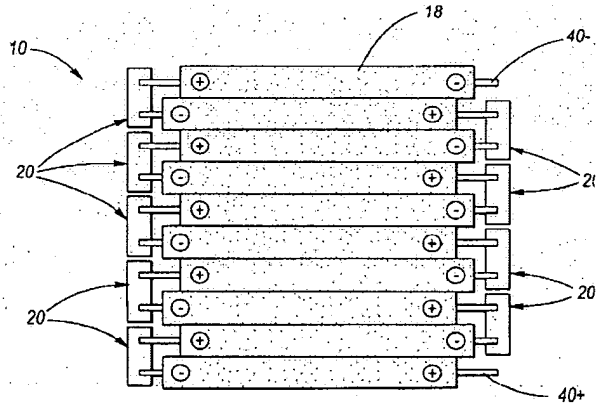

Fig. 1C

Regarding claims 5-7 and 15-16:

Figures 1D, 4A and 5 illustrate the connecting means including flat features and projecting members which are configures to be connected to the battery terminals and be accommodated through channels.

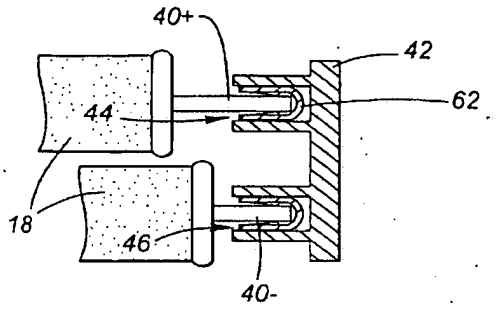

Fig. 1D

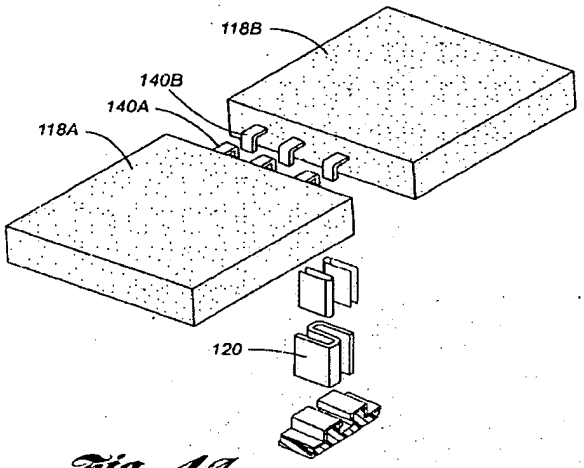

Fig. 4A

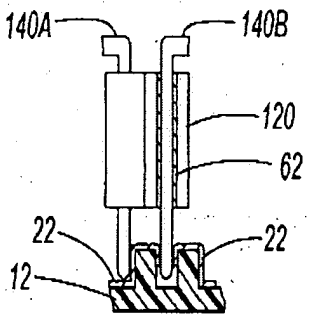

Fig. 5

As to claim 8:

It is disclosed that the modules are shown connected in-series by edge connections using buss interfaces 20 (COL 3, lines 55-64).

Regarding claims 9 and 17:

It is disclosed that the flexible printed circuit 22 is provided to establish electrical connectivity between each cell-to-cell node and controller to enable measurements of voltage levels and other parameters within the battery pack 10. Flexible printed circuit is also provided to collect and distribute electrical signals between various sensors within battery pack 10 and controller 16 (COL 4, lines 35-43).

It is also disclosed the following (COL 2, lines 5-14).

> One advantage of a battery pack in accordance with the present invention is the use of a flexible printed circuit to perform voltage sensing, temperature sensing, current limiting, and other functions within the battery pack. The use of a flexible printed circuit reduces and/or eliminates the need for many individual cables, lead wires, and fasteners. As a result, the inventive battery pack requires less assembly time as compared to most conventional battery packs and is more reliable.

Regarding claims 10-13:

Figure 2 below illustrate a fuse 70 (COL 5, lines 24-30); a connecter 72 to transmit electrical signals between circuit 22 and controller 16 (COL 5, lines 33-38); a resistor 68 provided to limit the current transmitted to controller 16 from buss blade 50 (COL 5, lines 15-23) *Thus, the resistor 68 acts as a current sensor.* It is also noted that connector 72 is used for voltage sensing (COL 5, lines 1-5). *Thus, voltage can be correlated to obtain the expected current magnitude.*

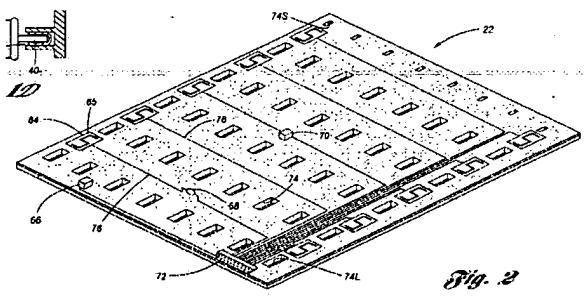

Fig. 2

It is also disclosed that the flexible circuit performs current limiting functions (COL 2, lines 5-14. *Thus, it senses current, at least, to some extent.* It is also apparent from Figures 1A and 2 above, that the flexible printed circuit comprises flexible joints which allow the flexible printed circuit to have some move-ability.

Thus, the claims are anticipated.

7. Claim 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiler 5999410.

As to claim 1:

Wailer discloses a flexible circuit board configurable for use with battery packs (TITLE/Abstract). Figure 1 shows a battery pack comprising a number of cells 10 which are electrically connected to a positive current trace 12 and to a negative current trace 14 via cell contacts 13 and 15 (COL 1, lines 55-61/ COL 4, lines 1-10). Figure 8 also shows the cells 10 and the flexible circuit board; wherein the cells are electrically connected to a positive current trace 12 and to a negative current trace 14 vial cell connectors (COL 4, lines 10-25). *Thus, the flexible circuit is configured to connect the battery terminals.*

As for claim 12:

The circuit includes two sense resistors (COL 4, lines 18-20).

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ronning et al 6423441 as applied to claim 2 above, and further in view of Barker et al 6063519.

Ronning et al is applied, argued and incorporated herein for the reasons above. However, Ronning et al do not disclose the battery unit including bi-cells.

Barker et al disclose a battery design for bi-cell batteries (ABSTRACT).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the battery unit including bi-cells of Barker et al in the battery pack of Ronning et al as Barker et al teach that batteries comprising bi-cell batteries are characterized by a particular cell structure-configuration that achieves an improved maximum energy potential and cycle life. Thus, bi-cell configuration provides optimum battery performance. *It is also noted*

that Ronning et al do encompass the use of different battery chemistry and other conventional batteries in their modules so as to power electrical systems. Thus, Ronning et al themselves directly envision the use of distinct and separate batteries comprising a variety of chemical environment and structural configurations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
Art Unit 1745